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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/017,842	10/23/2001	Claus Erdmann Furst	04590-000706	9627
30593	7590	06/17/2005	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C.			TAYLOR, BARRY W	
P.O. BOX 8910			ART UNIT	
RESTON, VA 20195			PAPER NUMBER	
			2643	

DATE MAILED: 06/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/017,842	<b>Applicant(s)</b> FURST, CLAUS ERDMANN	
	<b>Examiner</b> Barry W Taylor	<b>Art Unit</b> 2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 March 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 10 is objected to because of the following informalities: Claim 10 last line reads "externally t the". Appropriate correction is required.

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "analogue-to-digital converter" as recited in dependent claims 4-5 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will

be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rasmusson (5,515,432) in view of Ostman et al (5,786,782 hereinafter Ostman) further in view of Malmi et al (5,313,661 hereinafter Malmi).

Regarding claims 1 and 10. Rasmusson teaches method and apparatus for volume control and intelligibility control for loudspeaker (abstract and figure 6). Rasmusson teaches a plurality of user operable members (see control switches item 615 figure 6, col. 5 line 44 – col. 6 line 3). Rasmusson also discloses other user operable inputs may be used (see voice activated volume control command col. 5 line 61). Rasmusson discloses that the volume controls are adapted to provide a plurality of user operable control signals (see figure 6 wherein volume control buttons 615 are passed to RECEIVE DSP (670) and in the case they are voice activated (i.e. analogue) the analogue signal must be first converted to DIGITAL before passing the signal to RECEIVE DSP (670) to further process).

Rasmusson fails to teach multiplexing volume control inputs. However, Rasmusson figure 6 discloses using separate components for combining and

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converting. For example, the RECEIVE DSP (670) receives two inputs: one from volume control (item 615 or analogue from voice activated which of course must be converted via voice CODEC before passing signal to RECEIVE DSP) and one from radio receive path wherein analogue from radio antenna first converted via logic (see item 650 above RECEIVE DSP in figure 6) before passing to DSP. Rasmusson figure 6 clearly shows using separate components used for the transmit path as well. For example, before signal from microphone (611 figure 6) can be transmitted via antenna (610 figure 6) it also must be first converted to digital before passing it to another DSP (see TRANSMIT DSP---612 figure 6) then converted back to analog so IQ modulator (item 613) can mix it with the analog signal from oscillator (item 640) thereby converting it to RF signal to be transmitted over-the-air.

Ostman teaches A/D and D/A converters are effectively utilized in a mobile phone (i.e. mobile unit), for example, by multiplexing the signals before the conversion (abstract, col. 1 lines 1-4) in both time and frequency domain. Ostman discloses that prior art must use a large amount of circuitry for both the transmit and receive path (col. 1 line 57 – col. 2 line 15) which is what Rasmusson figure 6 shows. Ostman inventive concept is to use MULTIPLEXING (col. 2 lines 23-46) so that same components (i.e. use same A/D and D/A converters) may be used thereby saving on size and money. In other words, Ostman teaches using the same analog-to-digital converter, for example in a mobile phone, for converting both the speech signal from a microphone and the received signal from the radio part.

Realizing this and the fact the Rasmusson also teaches receiving user volume control signals either from (control buttons 615 or from voice activation) in conjunction with radio part information (see RECEIVE DSP 670 figure 6 wherein inputs from volume controls and antenna 610 are received). The difference being that Rasmusson requires a vast amount of circuitry, if not more in the case for voice-activated volume control commands.

Therefore, it would have been obvious for any one of ordinary skill in the art at the time of invention to modify the invention as taught by Rasmusson to use MULTIPLEXING as taught by Ostman for the benefit of reducing the number of components need for controlling the volume of mobile phone, as well as, saving money since fewer components are needed.

According to Applicants (see paper dated 3/7/05, page 14) Rasmusson illustrates only one volume control input form the volume control input to the microprocessor 680). The Examiner notes that Applicant's independent claims are extremely silent with respect to volume control signals. The Examiner notes that Receive DSP 670 clearly shows two inputs with one output.

Malmi also teaches adjusting volume control by using circuit means (col. 1 line 36) since plus and minus buttons (col. 1 lines 13-27) used to adjust the volume are difficult to use. Malmi discloses that by using circuit means to control multiplexer (see item 5 in figures 1 and 3) reduces the number of conductors needed and at the same time audio signal interferences may be reduced (col. 1 lines 20-27).

Therefore, it would have been obvious for any one of ordinary skill in the art at the time of invention to utilize the teachings of Malmi into the teachings of Rasmusson in view of Ostman in order to further reduce the number of components needed to control volume thereby saving money.

Regarding claim 2. Rasmusson teaches using oscillator (640 figure 6). Ostman also teaches using clock signal (col. 4 line 8).

Regarding claims 3-4 and 14. Ostman further teaches multiplexing input signals (col. 3 line 57 – col. 4 line 63).

Regarding claims 5 and 7. Rasmusson teaches analogue-to-digital converters for receiving voice activation volume control (col. 5 lines 55-63).

Regarding claims 6 and 13. Ostman teaches multiplexing in the digital domain (see figure 3a).

Regarding claims 7 and 15. Rasmusson teaches cellular phone (col. 1 lines 10-16). Ostman teaches mobile phone (col. 1 line 11) and Malmi teaches mobile phone (col. 1 line 8).

Regarding claims 8 and 11. Ostman teaches time domain (see first four lines of abstract).

Regarding claims 9 and 12. Ostman teaches frequency domain (see first four lines of abstract).

***Response to Arguments***

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4. Applicant's arguments with respect to claims 1 and 10 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barry W. Taylor, telephone number (571) 272-7509, who is available Monday-Friday, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz, can be reached at (571) 272-7499. The facsimile phone number for this group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 2600 receptionist whose telephone number is (571) 272-2600, the 2600 Customer Service telephone number is (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for



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published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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